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What is claimed is:

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1. A system for de-interleaving data in a wireless receiver comprising:
a memory buffer to store the data; and
means, coupled to said memory buffer, for performing a first and second de-interleaving of the data stored in said memory buffer.

2. The system of claim 1, wherein said means performs said second de-interleaving as the data is written to said memory buffer and performs said first de-interleaving as stored data is read from said memory buffer.

3. The system of claim 1, wherein said memory buffer stores the data, and wherein said means performs said first and second de-interleaving as the stored data is read from said memory buffer.

4. The system of claim 2, wherein the data comprises radio frames, said memory buffer comprises a plurality of radio frame blocks, and said means causes said radio frames to be stored in said radio frame blocks.

5. The system of claim 4, wherein the data is transmitted over one or more physical channels, wherein each of said radio frames comprises a physical channel frame associated with each physical channel, each of said radio frame blocks comprises a physical channel block associated with each physical channel, and said means causes said physical channel frames to be stored in said physical channel blocks.

6. A receiver that receives data via a wireless link, said receiver comprising:
a demodulator coupled to the wireless link;
a decoding/demultiplexing unit, coupled to said demodulator, that includes:
a memory buffer to store the data, and
means, coupled to said memory buffer, for performing a first and second de-interleaving; and
a medium access control layer coupled to said decoding/demultiplexing unit.

7. The receiver of claim 6, wherein said memory buffer comprises a plurality of radio frame blocks.

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1 8. The receiver of claim 7, wherein each of said radio frame blocks comprises a
2 physical channel block.

1 9. A system for de-interleaving data in a wireless receiver comprising:
2 a memory buffer; and
3 a read/write unit, coupled to said memory buffer, wherein said read/write unit is
4 configured to perform a first and second de-interleaving of the data.

1 10. The system of claim 9, wherein said read/write unit performs said second de-
2 interleaving as the data is written to said memory buffer and performs said first
3 de-interleaving as stored data is read from said memory buffer.

1 11. A method for de-interleaving data in a wireless receiver comprising:
2 performing a second de-interleaving as the data is written to a memory buffer;
3 and
4 performing a first de-interleaving as data is read from said memory buffer.

12. The method of claim 11 further comprising:
reassembling one or more physical channels from the data stored in said memory buffer;
performing a second removal of discontinuous transmission indication bits from the data stored in said memory buffer;
demultiplexing the data stored in said memory buffer into a plurality of transport channels; and
reassembling transport blocks from the data stored in said memory buffer, wherein the data comprises radio frames.

1 13. A method comprising:
2 demodulating data received via a wireless link;
3 writing said data to a memory buffer according to a second de-interleaving
4 pattern; and
5 reading said data from said memory buffer according to a first de-interleaving
6 pattern, forming an output data stream; and
7 decoding said output data stream.

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